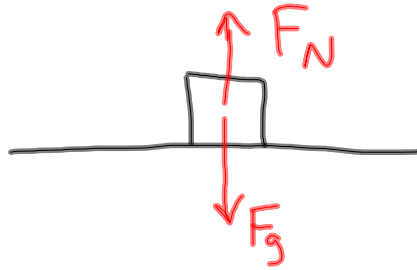


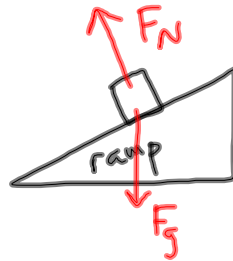
Quiz Wednesday

HW: p. 132: 1-4 Due Monday

## Normal Force:



- We must have a surface to have a normal force
- Force of the surface on the obj
- Normal force is always perpendicular to the surface

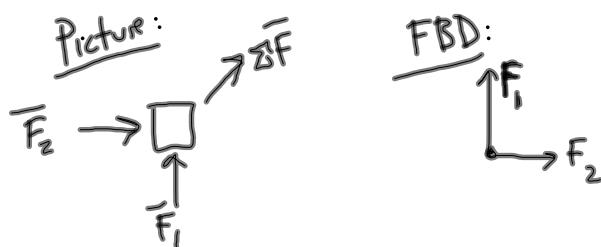


- If surface is horizontal, then

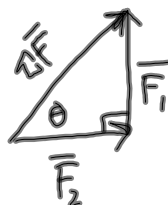
$$F_N = F_g.$$

- If surface is not horizontal then  $F_N \neq F_g$ . Only 1 component of  $F_N$  that is equal to  $F_g$ .

One force with magnitude of 50 N acts on object in north direction. Another force of 30 N acts on object in east direction. If object has mass of 5 kg, what is the object's acceleration (magnitude, angle, and direction)?



- find net force ( $\Sigma \vec{F}$ )



magnitude of  $\Sigma \vec{F}$ : 58.3 N

angle:  $59^\circ$

direction: N of E

- find acceleration  $\rightarrow$  Newton's 2nd Law

$$\Sigma \vec{F} = m \vec{a}$$

$\vec{a}$ :  
 angle:  $59^\circ$   
 direction: N of E

magnitude:  $a = \frac{\Sigma F}{m}$

$= \frac{58.3 \text{ N}}{5 \text{ kg}}$   
 $= 11.66 \text{ m/s}^2$

SAME as  $\Sigma \vec{F}$ !